WHAT IS CLAIMED IS

1. A data storage device, comprising:

an interface converter, for transforming an interface of a flash memory into an interface of a dynamic random access memory;

a dynamic random access memory, connected to said interface converter for storing the data stored in said data storage device; and

a battery capacity detector, for detecting the capacity of a battery connected with said data storage device and deliver a signal representing the battery capacity into a controller; and

wherein, when said battery capacity detector detects said battery reaching a pre-determined low electricity margin, the residual electricity is saved for said dynamic random access memory to operate the saving of the data and the high power-consuming components in the circuit are stopped.

2. The data storage device as recited in claim 1, wherein said battery capacity detector comprises an integrator connected to a digital-analog converter so as to precisely calculate the residual electricity.

3. The data storage device as recited in claim 1, is further connected to a rechargeable battery to provide sufficient electricity.

4. The data storage device as recited in claim 1, is further connected to a controller that connected to a display device, a player, and a transmission interface, wherein said data storage device is used in a digital sound player.

5. The data storage device as recited in claim 4, wherein said transmission interface is connected to the host via a cable.

6. The data storage device as recited in claim 4, wherein said display device is implemented by using a liquid crystal display (LCD), a thin film transistor liquid crystal display (TFT-LCD), or a light-emitting diode (LED).

7. The data storage device as recited in claim 1, is further connected

to a controller that connected to a charge coupled device (CCD) circuit, a display device, and a transmission interface, wherein said data storage device is used in a digital camera for photographing.

8. The data storage device as recited in claim 7, wherein said transmission interface is connected to the host via a cable.

9. The data storage device as recited in claim 7, wherein said display device is implemented by using a liquid crystal display (LCD), a thin film transistor liquid crystal display (TFT-LCD), or a light-emitting diode (LED).

10. The data storage device as recited in claim 1, is further connected to a controller that connected to a hard disk peripheral circuit, a display device and a transmission interface, wherein said data storage device is used in a portable hard disk.

11. The data storage device as recited in claim 10, wherein said transmission interface is connected to the host via a cable.

12. The data storage device as recited in claim 10, wherein said display device is implemented by using a liquid crystal display (LCD), a thin film transistor liquid crystal display (TFT-LCD), or a light-emitting diode (LED).

13. A data saving method of said data storage device, comprising the steps of:

precisely detecting the battery capacity of a battery connected to said data storage device;

determining if said battery reaches a pre-determined low electricity margin;

supplying said dynamic random access memory with the residual electricity so as to operate the saving of the data and stopping the other devices connected to said data storage device when said battery is detected reaching a pre-determined low electricity margin; and

displaying that said battery is running out of electricity.

14. The data saving method as recited in claim 13, further comprising a step after said step of displaying that said battery is running out of electricity:

determining if the low electricity state has continued for a certain period of time or has reached a lower state; and if yes, stopping the whole operation.

15. The data saving method as recited in claim 13, wherein said step of precisely detecting the battery capacity comprises a step of detecting the battery current and performing integration so as to obtain the ampere-hour capacity of said battery.

16. The data saving method as recited in claim 13, further comprising a step of converting the ampere-hour capacity of said battery into a desired signal by using a digital-analog converter.

17. The data saving method as recited in claim 13, wherein said step of determining if said battery reaches a pre-determined low electricity margin further comprises a step of starting a stand-by power supply so as to prevent the data from being lost due to the lack of electricity.

18. A data saving method of said data storage device, comprising the steps of:

detecting the electricity state of a main battery in said data storage device;

determining if said main battery reaches a pre-determined low electricity margin;

starting a stand-by power supply when said battery reaches the pre-determined low electricity margin;

supplying said memory of said data storage device with said stand-by power so as to operate the saving of the data; and

displaying that said main battery needs to be replaced or

recharged.

19. The data saving method as recited in claim 18, wherein said stand-by power supply is implemented by using a battery for supplying said memory in addition to said main battery.